VQGAN

(a) Architecture of VQGAN.

Gradient Descent

Random Initialization
(Trainable)

(b) Codebook optimization in VQGAN(-FC).

EMA Update

Random Initialization
(Updateable)

(c) Codebook update in VQGAN-EMA.

Ours

Class Centers

Image Dataset

Patch-Level
Feature Clustering

(d) Codebook initialization and quantization process in our VQGAN-LC.